Proposal to Change Degree Requirements For the Major

**NOTE:** All gray text boxes must be completed (even if you just put N/A into them), otherwise the committee must consider the form incomplete.

1. Department: **Mathematics**

2. Degree: **Bachelor of Science (Applied Mathematics Track)**

3. Semester and year in which degree change(s) will go into effect: **Fall 2011**

4. Change(s) Desired (Note: if the change includes deleting courses from the inventory, a Delete Course form must also be completed for each course, the Curriculum Committee does not assume the responsibility to delete the course):
   CURRENTLY THE REQUIREMENTS FOR THE APPLIED MATHEMATICS TRACK ARE
   
   Math 120 Introductory Calculus  
   Math 203 Linear Algebra  
   Math 220 Calculus II  
   Math 221 Calculus III  
   Math 245 Numerical Methods and Mathematical Computing and  
   Math 246 Mathematical Computing and Programming Laboratory  
   Math 295 An Introduction to Abstract Mathematics  
   
   Next:
   
   Math 311 Advanced Calculus I  
   Math 315 Introduction To Complex Variables  
   Math 323 Differential Equations  
   Math 430 Mathematical Statistics I  
   
   Either  
   Math 303 Abstract Algebra I  
   or  
   Math 402 Introduction to Applied Algebra  
   
   At least two courses taken from
   
   Math 423 Introduction to Partial Differential Equations  
   Math 431 Mathematical Statistics II  
   Math 445 Numerical Analysis  
   Math 451 Linear Programming and Optimization  
   Math 452 Operations Research  
   Math 470 Mathematical Modeling  

   Minimum 43 Hours
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Math 203 Linear Algebra
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Math 245 Numerical Methods and Mathematical Computing and
Math 246 Mathematical Computing and Programming Laboratory
Math 295 An Introduction to Abstract Mathematics

Next:

Math 311 Advanced Calculus I
Math 315 Introduction To Complex Variables
Math 323 Differential Equations
Math 430 Mathematical Statistics I

Either
Math 303 Abstract Algebra I
or
Math 402 Introduction to Applied Algebra

At least two courses taken from

Math 423 Introduction to Partial Differential Equations
Math 431 Mathematical Statistics II
Math 445 Numerical Analysis
Math 451 Linear Programming and Optimization
Math 452 Operations Research
Math 470 Mathematical Modeling

In addition, an elective requirement of three additional hours of mathematics courses at the
400 level or above.

Minimum 46 Hours

5. Justification for Change(s):
The current Applied Mathematics Track approved during the 2009-10 academic year was
meant to have 46 hours (the same number of hours as both the Pure and Statistics tracks).
The catalogue listed the number of hours as 46, but in fact it only had 43 hours. The
addition of an elective requirement of three additional hours of mathematics courses at the
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400 level or above, corrects this mistake and strengthens the track by encouraging students to take one of the many topics courses offered in applied mathematics.

The primary mission for the Applied Mathematics Track is to prepare majors planning to go to work in industry directly after graduation, or to graduate school in applied mathematics, with a strong undergraduate foundation in applied mathematics.

The proposed Applied Mathematics Track enhances the mission by establishing a strong analytic foundation at the junior (300) level, then offering students the choice to concentrate their study in either differential equations, approximation, modeling, operations research or statistics, while significantly reducing the number of hours required to complete the track. The twelve approved hours in an area of application outside the mathematics department currently required is a disincentive for students considering the applied track and substantially limits freedom to academically explore, one of the hallmarks of a liberal arts education.

Introduction To Complex Variables serves as a mid-undergraduate career capstone experience for majors in this track, since the topic draws on, expands upon and applies much of the mathematics they would have seen thus far.

6. Does the change include deleting or adding courses from other departments? If yes, what department/program? Please contact the department chair/program director and request a note or email that they are aware of the proposed change and include that note with the proposal.

No, not specifically. But since one would expect that the current twelve approved hours in an area of application outside the mathematics department would be taken from departments within the School of Sciences and Mathematics, the proposed change could theoretically shift some enrollments outside of the Department of Mathematics. However, since so few students choose the applied track because of its heavy credit hour requirements, practically the effect will be negligible if any.
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6. Signature of Department Chair (s) or Program Director(s):

_____________________________ Date: ________________

_____________________________ Date: ________________

7. Signature of Dean(s) of School:

_____________________________ Date: ________________

_____________________________ Date: ________________

8. Signature of Provost:

_____________________________

Date: ________________________

9. Signature of Curriculum Committee Chair:

_____________________________

Date: ________________________

10. Signature of Budget Committee Chair:

_____________________________

Date: ________________________

11. Signature of Planning Committee Chair:

_____________________________

Date: ________________________

12. Signature of Faculty Senate Secretary:

_____________________________

Date approved by Senate: ________________

Completed form should be sent by the Faculty Senate Secretary to the Registrar. After implementation, information concerning the passed course and program changes will be provided by the Registrar to all faculty and staff on campus.

This form was approved by FCC on 2/17/2009 and replaces all others.